

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)
Hiroshi SANO et al) Group Art Unit: Unassigned
Application No.: Unassigned) Examiner: Unassigned
Filed: October 5, 2001)
For: THEOBROMINE SYNTHASE)
POLYPEPTIDE OF COFFEE PLANT)
AND THE GENE ENCODING SAID)
POLYPEPTIDE)

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination of the above-captioned patent application, kindly enter the following amendment.

IN THE CLAIMS:

Kindly cancel claims 1-15 without prejudice or disclaimer, and add new claims 16-34 as follows:

16. (New) A polypeptide consisting of an amino acid sequence of following (a) or (b):

(a) an amino acid sequence defined by amino acid numbers from 1 to 378 shown in SEQ ID NO: 1 in a Sequence List,

(b) an amino acid sequence in which a part of said amino acid sequence (a) is deleted or another amino acid sequence is added to said amino acid sequence (a) or a part

of amino acid sequence (a) is substituted with another amino acid sequence, the amino acid sequence (b) having the activity to biosynthesize theobromine using 7-methylxanthine as the substrate.

17. (New) A polypeptide consisting of an amino acid sequence exhibiting at least 90% of homology with an amino acid sequence defined by amino acid numbers from 1 to 378 shown in SEQ ID NO: 1 in a Sequence List.

18. (New) A gene encoding the polypeptide according to claim 16.

19. (New) A gene encoding the polypeptide claim 17.

20. (New) A gene consisting of a base sequence of following (c), (d) or (e):

(c) a base sequence defined by base numbers from 1 to 1298 shown in SEQ ID NO: 2 in a Sequence List,

(d) a base sequence in which a part of base sequence (c) is deleted or another base sequence is added to said base sequence (c) or a part of base sequence (c) is substituted with another base sequence, the base sequence (d) encoding a polypeptide having the activity to biosynthesize theobromine using 7-methylxanthine as the substrate,

(e) a base sequence that hybridizes with said base sequence (c) under stringent condition, the base sequence (e) encoding a polypeptide having the activity to biosynthesize theobromine using 7-methylxanthine as the substrate.

21. (New) A gene consisting of a base sequence exhibiting at least 90% of homology with a base sequence defined by base numbers from 1 to 1298 shown in SEQ ID NO: 2 in a Sequence List.

22. (New) A transformed plant wherein expression of the gene according to any one of Claims 18 to 20 is decreased in the plant to inhibit biosynthesis of theobromine.

23. (New) The transformed plant according to Claim 22, wherein antisense gene method is utilized to inhibit biosynthesis of theobromine.

24. (New) The transformed plant according to Claim 22, wherein said plant is selected from the group consisting of *Coffea arabica*, *Coffea canephora*, *Coffea liberica* and *Coffea dewevrei*.

25. (New) A seed obtained from the transformed plant according to claim 22.

26. (New) A seed obtained from the transformed plant according to claim 23.

27. (New) A seed obtained from the transformed plant according to claim 24.

28. (New) A transformed plant wherein gene according to any one of claims 18 to 20 is introduced in the plant to increase biosynthesis of theobromine.

29. (New) The transformed plant according to claim 28, wherein said plant is selected from the group consisting of *Coffea arabica*, *Coffea canephora*, *Coffea liberica* and *Coffea dewevrei*.

30. (New) A seed obtained from the transformed plant according to claim 28.

31. (New) A seed obtained from the transformed plant according to claim 29.

32. (New) A method for production of a transformed plant in which biosynthesis of theobromine is inhibited in the plant by decreasing expression of the gene according to Claims 18 or 20.

33. (New) The method according to Claim 32, wherein antisense gene method is utilized to inhibit biosynthesis of theobromine.

34. (New) A method for production of a transformed plant in which biosynthesis of theobromine is enhanced in the plant by enhancing expression of the gene according to Claims 18 or 20.

REMARKS

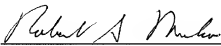
By the present Preliminary Amendment, original claims 1-15 have been canceled without prejudice or disclaimer and new claims 16-34 have been added to avoid multiple dependency which is believed to be improper under the rules of the United States Patent and Trademark Office. In this respect, each of the new independent claims is identical to the original independent claims. In addition, certain of the claims have been revised to make it clear that the claims from which they depend are in the alternative. It is to be understood that the revisions to the claims are solely for formalistic purposes and not with regard to patentability and that applicants reserve the right to pursue claims directed to other aspects of the invention encompassed by the original multiple dependent claims or described in the specification.

Entry of the instant Preliminary Amendment and favorable consideration on the merits are respectfully requested.

Should the Examiner have any questions concerning the subject application, the Examiner is invited to contact the undersigned attorney at the number provided below.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: 
Robert G. Mukai
Registration No. 28,531

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620

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